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ABSTRACT

The interaction between theoretical linguistics and language teaching has historically been problematic. This interaction is viewed here from the standpoint of educational linguistics, which is the intersection of linguistics and related language sciences with formal and informal education. The issue is the relevant educational problem that knowledge about language acquisition could help solve. To this end, three related questions from the fields of psycholinguistics and language acquisition are investigated: (1) What is the normal course of the development of language in an individual? (2) Given the normal range of individual variability in the development of communicative competence, what factors account for this variation? (3) Which of these factors are susceptible to control by an educational system? It is felt that the answers to these questions are basic to language education, since they both set its limits and suggest the kind of intervention that might permit helping each individual. (CLK)

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The Comparative Study of First and Second Language Acquisition

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Many linguists, like other scholars, prefer their field not to be corrupted by any suggestion of relevance to practical matters; for them, linguistics should remain a pure science, its study motivated only by the desire to increase human knowledge. There are others, however, who claim that it can offer a panacea for many of the problems they hear of, and who therefore rush to offer their services to handle any difficulties in language planning or teaching. Each of these positions is, I believe, equally wrong, for while it is true that linguistics can often develop knowledge of use to the solution of practical problems, especially in the area of education, the relation between the theoretical knowledge and its practical implication is seldom direct.

Some part of the difficulty might well have derived from the term applied linguistics with its implication that linguistics is to be applied to something. In too many cases, theoretical linguists tended to assume that their linguistic theory should be used to solve directly the problems of some practical area like foreign language teaching or the teaching of reading. Generally, they have turned out to see the problem so narrowly that their solution has done as much harm as good. In the field of language teaching, for instance, the structural linguists worked effectively to replace a system based on one limited view of language (the translation method) by an equally rigid and psycholinguistically invalid approach (the audiolingual method). When this system too turned out to be inadequate, there were many who thought that all that was needed was to come up with a new one based on the latest theory of language. Much more productive than such an approach is to start with a specific problem and then look to linguistics and other relevant disciplines for

their contribution to its solution. Language teaching, for example, takes place in a school and is as much influenced by sociological, economic, political, and psychological factors as it is by linguistic ones.

Within this context, I choose to approach the problem today from the point of view of a field that I prefer to call educational linguistics. The scope of educational linguistics is the intersection of linguistics and related language sciences with formal and informal education. It is a field that needs to draw on the various branches of linguistics and to derive from them implications for educational practice. (Spolsky, in press)

In this context, it is reasonable to start by asking what is the relevant educational problem that knowledge about language acquisition might be expected to help solve. The central aim of any language education is to increase the student's ability to communicate verbally, both productively and receptively. There are three major aspects to such modification: the enrichment of the child's original variety, the addition of another variety, or the suppression of a variety. Other classifications are made: for example, between mother-tongue teaching, second language teaching, and foreign language teaching. Each of these may be further defined and refined according to the variety, the function for which it is intended, and the level of competence aimed at. Various areas of linguistics have their contribution to make to the description of the task and its possible accomplishment. Linguistic theory will necessarily dominate the whole process making clear exactly what is meant by language in the whole process. Sociology of language will be of critical importance in recognizing the functional differentiation of the varieties concerned and the social pressures that account for the patterns of language use in the child's immediate environment and in the society for which he or she is being

educated. And psycholinguistics will be expected to cast light on the process of the development of linguistic and communicative competence itself.

From the field of psycholinguistics in general and from the studies of language acquisition in particular, the educational linguist asks three related questions: 1) What is the normal course of the development of language in an individual? 2) Given the normal range of individual variability in the development of communicative competence, what factors account for this variation? 3) Which of these factors are susceptible to control by an educational system? The answers to these questions are clearly basic to language education, for they both set its limits and suggest the kind of intervention that might permit helping each individual child reach these limits.

The normal course of language development.

The general lines of a child's development of language are reasonably well established. During the first few months of his life, the human infant produces a wide range of sounds. Some of these sounds are identified by mothers and by some investigators as being differentiated and able to express such notions as hunger or discomfort. Also during this stage, the infant becomes able to react differently to different voices. In the period from six to ten months, the child's vocalizations become phonetically more complex using a wide range of vowels and consonants that provides opportunity for some imitative practice. Between eight to ten months, evidence is seen that the child can understand various linguistic signals: gestures, words, phrases, and other instructions. From about that age, they gradually develop ability to differentiate sounds. By about ten to twelve months, the child starts to understand commands.

The first "word" usually occurs about the twelfth month. For

about the next six months, there is a low addition of vocabulary, each one word or unit functioning like a full sentence and having, in different situations or with different accompanying gestures, different meanings. In the second half of the second year, there is a rapid increase of vocabulary and the emergence of patterned speech. The nature of the first pattern has been analyzed by a number of observers as consisting of two-word classes and the possibility of combining them into two-word sentences. The two-word sentence stage raises the basic questions about the nature of child language acquisition, with the nativists arguing that it presents evidence of the innate nature of linguistic rules and the learning theorists attempting to suggest mechanisms by which it could be learned; the weight of argument appears to favor the former. By the end of the third year, evidence suggesting a much more complex grammar has emerged, allowing for three-word sentences with considerable structural complexity. In the next two years, there is rapid progress in the development of syntax; by the age of five, the child's syntax is reasonably close to adult, and he or she can usually communicate with a stranger. Even at this stage, there still remains considerable differences between the child's grammar and adult grammar. Studies of comprehension have shown that there is a gradual learning of more complex structures for the next five years at least. The acquisition of vocabulary continues for a long time after that. Evidence also suggests that semantic development is extremely slow: some lexical generalizations only start developing about the age of eight.

Only recently has there been much research into the development of more complex communicative competences. There is good evidence on the development of more than one language in an individual. The classic study of child language is still Leopold's study of his own bilingual

daughter. He summarizes the process as follows:

> In the initial stage the bilingual presentation merely meant a larger vocabulary to choose from. The child chose either the German or the English item at her own discretion, leaning at first more on German, later more and more decidedly on English, and welded one language instrument out of the two presentations... The split into two contrasting languages, distinguished by the person addressed, first showed rudimentarily and vascillatingly towards the end of the second year. Consciousness of dealing with two languages began early in the third year. The active separation of the two languages did not start in earnest until the very end of the third year. Increasingly, from then on, the learning of English and German proceeded separately. (Leopold 1953)

Other studies of childhood bilingualism make clear that a child can acquire more than one language at a time; there is a period of confusion or delay, but in normal cases, each language ultimately develops separately, its strength determined by various sociolinguistic factors influencing the environment in which the languages are acquired and the attitudes developed to them. Even when children learn only one language, it is clear that they also learn the stylistic requirements of different situations. While the bulk of the acquisition of stylistic variation probably occurs after the age of five, children by then will probably have developed a number of controlled variations depending on the person they are speaking to. For instance, they will often have learned to use a

form of baby talk when speaking to dolls and small animals, and have developed different styles for speaking to strangers.

With the age of starting formal education, a whole new set of demands is added. Teachers and peers each require new and conflicting varieties; the introduction of the written language adds a new channel and usually also new linguistic rules; there is a rapid increase in the demand for verbalization of concepts; and there is a new set of socio-linguistic rules, like one telling you to keep quiet except when the teacher asks you to speak.

In general outline, this is the course of normal development; within this range, the child builds its own communicative competence, making use of the combined working of its innate language acquisition ability and its exposure to meaningful language.

The question of variation.

There is no question but that there is considerable variation in the communicative skills developed by individuals. Some people have a much wider range of skills: they can control several languages and several varieties of language. And there is great variability in the level of skill reached by individuals: few indeed have the powers of expression of a Shakespeare; and as literature teaches while it tests, not everyone is capable of reading and appreciating literature. The nature of this variability, the factors that account for it, and the way it might be altered, are the principal concerns of educational linguistics. Before we look at this in more detail, we might ask about the potential implications of various answers.

If, as the most extreme nativist position holds, all aspects

of language acquisition depend on innate abilities and properties, there would appear to be no point in language education. To the extent that language acquisition is unaffected by the external environment, or that it is purely genetically based, there is little point in talking about other factors, or in looking for ways of controlling or approving any individual student's skills. A modified nativist position is possible: it might be argued that linguistic competence (in the Chomskyan sense) is what is purely innate, while linguistic performance and communicative competence are dependent both on linguistic competence and on other factors, including environmental ones. If this is so, then the study of linguistic competence is important to educational linguistics in the way that it delimits the area in which intervention is irrelevant. At the same time, the educational linguist is interested in the kind of factors that govern the development of varied linguistic performance and communicative competence.

Another simple view would be a strictly environmental one. If all aspects of language are learned, whether the learning is as simple as in Skinner's model or as complex as proposed by Staats (1971), then there are presumably no limits to be set on the potential of language educators; once the mechanisms of learning can be understood, any kind of modification is possible.

Much more complexity is implied by an approach that admits any degree of mixture of innate development (say, development that is tied to maturity and timing) and learning, for it would be necessary to isolate the effect of each of these. One such approach is held by those who seem to believe that first languages are "acquired" in some simple way, but that second languages need to be learned in quite different ways. In

what follows, I shall assume a multifactor explanation though, given the present vagueness in definition of communicative competence and the crudeness in available measure of an individual proficiency, there would seem to be slight hope of any precise allocation of degree of relevance to each of the identified factors.

As has been mentioned earlier, contemporary psycholinguists have tended to stress the nativist position, finding in the acquisition of language clear evidence of an innate predisposition. One implication of their position is a biological and genetic explanation of variability in the level of competence achieved by an individual. Behavioral psychologists on the other hand stress the role of environment, building their models of language learning around notions of reinforcement, conditioning, and generalization that they derive from general learning theory. Such an approach implies the ease of changing language behavior by training. A third position, related in its emphasis on environment to the second, is that of the sociolinguist, whose basic interest in socially correlated language variation leads them to accept easily the existence of a cause or relationship between social factors in linguistic development.

While the contrast in the underlying philosophy of each of these approaches is clear it is possible, as Osser (1970) suggests to conceive of reconciliation. Such a reconciliation might involve holding that every child has equal inherited propensity for the development of linguistic competence, but that differing environmental conditions lead to eventual differentiation in language performance. There is good reason to favor Osser's suggestion that biological factors play a greater role in the development of prelinguistic vocalization and in the acquisition of basic language structure, while social and environmental factors are more

important in the acquisition of more elaborated styles and in the learning of socially appropriate varieties. Another way to characterize the general division between the two might be to suggest that innate factors will be more concerned with the form in which linguistic knowledge is stored (the kinds of rules and features that form an individual's grammar) while social factors in environment will control the amount and kind of linguistic knowledge and the ability to use it.

Let us start in any case with the factors that are internal to the learner and with those that might be called biological. Even if we accept that the propensity for language is inherited, and if we define propensity for language so as to include language universals, we can still allow room for biological genetic variation in individual cases. First, there are the clear cases of genetic variation: cases of congenital defects that affect the development of language and speech. For example, when the brain does not develop fully, the resulting mental retardation is accompanied by impairment of various aspects of language function.

A strong proponent for the importance of genetic factors in language learning (and in other learning) is Arthur Jensen (1969) who has argued that there are two levels of learning. The first is "associative" learning while the second level, a higher level, is required for "cognitive or conceptual" learning. These two levels of learning he says depend on different newel structures that are genetically provided. One of the many difficulties with this position, with its clear racial overtones, is that what Jensen considers "cognitive or perceptual learning" appears to be basic to any language acquisition, whether of a standard or non-standard variety. For it to be true, there would need to be evidence of difference in structure between the various social varieties; and no such evidence

has been produced.

Moving from genetic to general physiological factors, there are clearly a number of anatomical and physiological features that are necessary to the full development of normal human language. Pathological conditions, whether genetic or traumatic, will necessarily interfere with its acquisition. Luria's work (1973) in neurolinguistics has made clear the main lines of correlation between the physiology of the brain and language abilities. Another striking piece of evidence for physiolocal correlation is Lenneberg's presentation (1967) of the close parallels between the development of language and the development of other motor skills. Connected to the notion of the relation between physiological maturation and language acquisition is Piaget's theory of successive cognitive stages. If we assume a built-in biological clock, then we cannot expect external influences to have a major effect. Thus, an extreme nativist position might rule out the influence of environment and the value of intervention. In gross terms, there is some truth in this: whatever you do, you can't teach a baby to talk before it's ready and while you can produce certain behaviors before the competence for them has appeared, this behavior is no more counterevidence than as a parrot's "speech" evidence that birds can learn human language. But, in finer detail, it also seems clear that the biological state is a matter of potential rather than actual ability: it means that the organism is ready to acquire the next stage of competence, provided only that it is exposed to appropriate environmental stimulus.

This analysis fits in with the notion that a process of hypothesis testing underlies much of language acquisition. The child is ready with a set of hypotheses about the nature of language, and is ready to test the accuracy of these hypotheses and to modify them. But this can only

done only when he or she is exposed to relevant examples. The critical question is how much and what kind of exposure is necessary. For if a great deal of exposure is needed, then one could easily explain individual differences as resulting from the amount of exposure: thus, children in homes where there is little talking would be expected to acquire language more slowly or less completely. Convincing evidence on this position has not yet been presented.

Without going further into basic causes, I should like now to look at a number of other learner (and so internal) factors that are likely to influence language acquisition. These are ability, motivation, learning strategy, and personality. None of them are prime factors. Ability is at least in part genetic, motivation depends on attitude, and learning strategies are themselves learned. But using each as a separate heading permits us to find out more about the business of acquiring language. By ability, I refer here both to general intelligence and to specific language aptitude. A first distinction might usefully be made between the normal, informal acquisition of a language (whether a first or a second or a subsequent one) and the formal learning of a standard variety or second or foreign language in school. Take the formal learning first. Intelligence, as Jakobovits (1970) points out, is usually considered the ability to learn: this being so, it is no wonder that I.Q. correlates clearly with school foreign language learning, explaining about fifteen to twenty percent of the variance. Even more significant in a school situation is the general factor that Jakobovits labels foreign language aptitude and that he believes accounts for about one-third of the total variance. According to John Carroll's (1965) analysis, foreign language aptitude includes at four distinct abilities: 1) the ability to discriminate sounds and to store auditory data over something longer than a few seconds; 2) the ability

to recognize (but not necessarily label) the grammatical functions of words and sentences; 3) the ability to memorize material, whether meaningful or meaningless; 4), the ability to infer linguistic patterns from new linguistic contexts.

A little reflection suggests that these abilities, so basic to formal foreign language teaching, also have their part in normal first language acquisition. A child must not just discriminate between the various auditory data, but store them; he must be able to recognize the function of words in sentences; he must be able to memorize; and he must be able to infer linguistic rules without supervision. In what way, then, does aptitude for foreign language learning differ from aptitude for acquiring a first language? Or, put another way, why should a test measuring the factors that Carroll proposed be a better predictor of foreign language learning than a simple measure of first language proficiency? For it is reasonable to assume that these factors might be just as well measured by their effect on the development of first language proficiency as by themselves. The answer, I believe is that the test, itself a formal school activity, measures not just the abilities, but also the willingness or ability to use them in a foreign language classroom, another formal school activity. The factors are underlying ones, but measuring them involves measuring this additional factor too.

Motivation is another general term that includes in it a number of deeper factors. In foreign language learning, it can be translated as perseverance and is then quantifiable as the amount of time a student is prepared to spend learning. Jakobovits presents five factors contributing to perseverance: 1) need achievement, 2) attitude toward the teacher, 3) interest in second language study, 4) attitude towards

foreign culture, 5) ethnocentrism and anomie. For this last factor, the basic statement is that of Lambert and others (1962):

> "This theory, in brief, states that an individual successfully acquiring a second language gradually adopts various features of behavior which characterize another linguistic and as is often the case, another cultural group. The learner's ethnocentric disposition and his attitude towards the other group are believed to determine his success in learning a new language."

In a number of basic studies, Wallace Lambert and his colleagues have drawn attention to the major importance of what they call integrative motivation to the learning of foreign languages. They suggested that there are two classes for motivation for language learning, instrumental and integrative, and that the presence of the latter is necessary to successful mastery of the high levels of proficiency.

While the cluster of attitudinal and motivational factors is more relevant to formal school language learning than to the informal acquisition of a first or second language, there are hints for this latter situation, especially in the attitudinal factor. Need achievement is related to performance in a school subject, as are the next three factors: attitude towards teacher, interest in second language study, and attitude towards foreign cultures. With slight modifications, these same factors might be expected to relate to success in any school subject. But the fifth is specific to language study: one learns the language better if one wants to use it for group membership than if one needs it for any other purpose.

There is a connection between integrative motivation and the need to communicate. The more one wants to be part of a group, the greater

the need to learn its language. John Macnamara (1971) refers to this when he discusses the failure of classroom language teaching as compared to street language learning. In the street, he says, "the reward for success and the punishment for failure is enormous. No civilized teacher can compete. But more to the point, the teacher seldom has anything to say to his pupils so important that they will eagerly guess his meaning." p.475). As the immigrant child on the street or in the classroom is forced by his need to communicate to acquire the new language, even more the infant is presumably eager to make sense out of the world around him and gain through language, better control of what is done to him and more productive membership of the social group in which he is growing up. Motivation, then, is a complex set of factors, internal to the learner but showing close ties with his environment, that has considerable influence on the acquisition of communicative competence; as it varies in strength and kind, so individual learners are likely to vary in the proficiency that they attain.

Other factors

It is somewhat artifical to distinguish between the learner factors discussed so far and the inherent or environmental causes which lie behind them. What we are dealing with here are not distinct categories, but a continuum that might be ordered according to the possibility of ease of external manipulation. We have talked so far about factors that are either innate or so basic as to make intervention difficult. We go on next to look at those aspects of the environment that are external to the learner but not usually under the control of the school and finally at the instructional variables that the school is assumed to be able to control.

There are a set of factors which, although outside the normal sphere of formal education, are in fact susceptible to control. Among

the child's experiences, the earliest likely to have influence on language acquisition, as in other aspects of physical and cognitive development, is prenatal and early nutrition. Studies suggest that fetal malnutrition affects not just birth weight itself but that a significantly large proportion of low birth weight children turn out to be mentally subnormal. There is indeed evidence to suggest that malnutrition impairs the development of complex intellectual skills and adaptive capacities.

The next significant period of interaction is in the home during early childhood. To what extent does variation in the home experience affect language development? The first kind of result is obvious: children acquire the language or languages and variety or varieties to which they are exposed. Relevant research has been summarized by John and Moskovitz (1970). During the pre-linguistic stage, the rate of a child's vocalization can be increased experimentally. Studies that show that more talk is directed to children in normal homes than in institutions perhaps help account for the poor language development of children in institutions. It has also been shown that from the age of eighteen months on, children in U.S. middle class homes produce more sounds than lower income children. Social class and ethnic differences in performance on vocabulary tests show up from about the age of three. But these results might reflect the kinds of tests used than motivational variables in the test situation. Studies of syntactic development have yielded contradictory results, often hampered by failure to recognize the different varieties of language being acquired. A number of studies do, however, ascribe an important role to parent-child dialogue in language development. McNamara's theory of language learning argues for the importance of the parental role.

He suggests that a child works out the structure of a language by first determining meaning, then finding the relation between meaning and expression. This depends, he says, on the provision of many clues: a mother talks to the child usually about things that are present to his senses, she uses exaggerated intonational patterns, and she accompanies her speech with gestures and facial expressions. If these processes are so important, it is clear why there is such a potential for variation. Various cultural and ethnic groups have different attitudes to verbal expression. The traditional Jewish emphasis on verbalization would thus help explain why the economic poverty of the east European ghetto was accompanied by linguistic richness, rather than the impoverished speech that so many scholars assume goes with poverty. Beyond these group differences, great degrees of individual variation could also be expected to result from the kind of language use that takes place in the home and from the attitude to verbalization.

It will be clear that these matters bring us to the general question of the relation of social class to language development. In recent years, there have developed two conflicting views which characterize the position taken by most U.S. scholars. The first, which may be called the language deficit theory, is held by a number who have worked on studies of poverty; it assumes the existence of shortcomings in the language capabilities of poverty children. A contrary argument, often called the language difference position, has been taken by linguists; they say one is dealing not with deficit but with a different variety of language. The seeming deficit is a result of testing the children for their use of a variety of language that they do not in fact use.

The way these two positions have arisen is clear. As long as one assumes (and such assumptions are common among American educators)

that there is only one variety of English, the standard language, and as long as one measures the performance of lower class or minority children in this variety, one finds deficits. It is easy to conclude then that the children have limited vocabularies or control a limited number of grammatical structures. There is, of course, a deficit if the child is compared to a speaker of standard English. To this extent, the deficit theory is an accurate description of the minority child's language situation. But the supporters of the theory go further: they assume either that the minority child controls no variety of language in which he is not deficient, or that the variety he controls is itself inferior in some intrinsic way. These two extensions are denied by linguists. Their work has generally made it possible to observe and study the complexity and richness of the non-standard varieties that these children often control, and have further found no real support for the notion that one language or variety is intrinsically inferior to another.

With the idea of inferior languages is often confused the notion of distinct codes or styles presented by the British sociologist Basil Bernstein. Bernstein points out the error in equating his notion of a restricted code with the notion of linguistic deprivation. His interest is not in differences of competence but in differences in use:

> It is not that working-class children do not have in their lexical repertoire the vocabulary used by middle class children. Nor is it the case that the children differ in their tacit understanding of the linguistic rule system. Rather what we have here are differences in the use of language arising out of a specific context. One child makes explicit the meaning which he is realizing through language for the person to whom he is telling the story,

whereas the second child does not do this to the same extent. (Bernstein 1970:26)

Bernstein believe that these different forms of communicative style have a social origin, depending on the strength of social collective bonds. These codes, which are matters of performance and not competence, establish a cultural control over the speaker's options. The code, he believes, has an effect on educability, for children who are "limited to a restricted code primarily because of the subculture and role system of the family, community, and work" are likely to rely on extra verbal means of expression, to perform poorly on verbal I.Q. tests, to have difficulties with abstraction, and in general to gain little benefit from school. Formal education requires of these children that they change their code and in the way they relate to their community. It handicaps them further for as Bernstein says "at the same time we offer these children grossly inadequate schools with less able teachers."

Factors under school control.

Whatever degree of variation in individual communicative competence might be inherited, a great deal of the variation is likely to be accounted for by environmental factors which are, as we have just seen, outside the normal control of the school. To this extent, it can reasonably be suggested that language education is not just a matter for the educational system, but is very deeply and clearly influenced by a variety of social, political, cultural, and economic factors.

What then can a school do to modify the communicative competence of its pupils? What kinds of changes can it produce? It can try to enrich a variety, to teach a new medium or channel, or to teach a new style. In carrying out these various changes, it can basically manipulate two factors: the pupil's motivation and his exposure to a variety. Take

motivation first. If we use Lambert's distinction between instrumental and integrative motivation for foreign language acquisition, it becomes clear that the school can provide various kinds of motivation leading its pupils to change their linguistic repertoires. The strongest of these is the need to communicate: by forcing the pupil to modify his variety of language, or to acquire a new one, before he will be understood or will understand what is going on around him, the school seems to be providing the strongest possible motivation for the change. But it is actually more complex than this. Consider the kind of policy adopted by many schools which punish children for speaking languages other than the school language. There are equally strong but less negative means of motivating: the key point is to provide a situation (a time or a context) in which the target variety is useful for communication. One of the most effective of such ways is to use it for instruction; that is, rather than trying to teach the variety, to use it to teach in. Central here is the naturalness of the requirement: the child can accept as reasonable that there are people, places, and times which demand a certain variety, and he will learn that variety as long as he wishes to communicate with those people, in those places and at those times. The relevant strength of the different kinds of motivation is likely to change with changes in the prestige of a language. In Quebec, Parisian or continental French remains the status language, while French-Canadian was associated with social disadvantage, but the recent improvement in the political position of the French-Canadian has led to increased learning of French by English speakers. Because it lacks control of this more basic kind of motivation, the school usually tries to work on the learner's instrumental motivation. One such approach is to explain to the pupil the value of the variety he is being encouraged to learn, pointing out that he will need it for some later stage of his education, of his career, or

for greater enjoyment of leisure. More generally the school is forced to take advantage of the pupil's general desire to succeed in what he does, apportioning grades, praise, blame, and prizes to encourage how to work and more earnest application.

The school itself can usually do little to change motivation, but it might do much more than it does to recognize individual differences and kind and degree of motivation. What it does control much more is the learner's exposure. It is often the case that school is the first place where the child is exposed to the new or modified variety. Many children meet the standard language or the standard variety for the first time when they come to school and probably the majority are expected to use the more formal autonomous styles only as part of their formal education. In extreme cases, school is the only place within the society where the school variety, with its high demands of purity and correctness and its often artifical set of special conventions is to be found.

While there is no variation in the fact of exposure, there is of course considerable variation possible in the amount and manner. A first manipulable variable in language education is the time devoted to it: how much and how often is the learner exposed to the language or variety he is expected to acquire. It is a reasonable assumption that, other things being equal, the more he is in contact with the variety, the more he will be likely to acquire it. One might also ask what arrangement of time would be most beneficial. It is often argued for example that the teaching of a second language should start as early as possible. The strongest form of theoretical argument in favor of this policy depends on the notion that natural language acquisition takes place only while the

child is young: that biological maturity involves a hardening of the ability to acquire language. H.H. Stern (1967) has summarized the evidence for early starts and concludes much more cautiously than one might have expected: "nor is psychological evidence for an early start in the teaching of languages before puberty nearly as obvious as popularly believed". The starting age, he believes, is a matter much more of the intended aim rather than on some natural advantage of an early start. There seems to be no reason against starting to expose a child to a second language dialect or standard early on but not as vital an importance to it as is sometimes conceived. Ervin-Tripp (1974) has reported on the superior language learning strategies of older children than younger, and Krashen's distinctions between formal and informal instruction helps account for the advantages that adult learners have in many situations.

What seems likely to be important is the manner and speed of presentation of the new variety. Depending on goals and situation, there is likely to be an optimal gradient at which the child is presented with and called on to use a new variety. At one extreme, there is a traumatic experience of the lone immigrant thrust into an environment where he knows not a word of the new language with which he is surrounded; at the other, the occasional five-minute lesson devoted to a classical language as in the attempts to help English children appreciate Latin routes in English. Between there is a whole continuum of possibilities, varying not just in the dimensions of time sharing (how much of the time available is given to each variety) but also the kinds of communicative demands (oral or written, active or passive), and topics, situations, or participants to which the varieties are allocated.

As well as variations in time, variations in exposure are possible.

I use exposure as a neutral term, referring to the way in which the new variety, or any aspect of it, is presented to the learner. But there are a number of different kinds of exposure possible, again forming a continuum. Start at the level of a single event: a critical aspect of a language learning or teaching event is presumably the internalization of the new rule or item,or the testing of the hypothesis, the step towards the development of full communicative competence. Learning a variety involves a vast number of such internal events, and follows the experience of an even larger number of exposures to external data relevant to the internal decision.

Perhaps this could become clearer if we look at an example. Any piece of linguistic knowledge is part of the complex whole, and it is quite artificial to isolate any simple unit. Consider however a stylistic or social rule, the sort that speakers of a non-standard variety are expected to develop with the standard variety. We'll take the fact that standard English has a number of different forms in place of the sub-standard "ain't".What are the various ways in which a speaker who uses ain't might be taught to use the standard forms? A number of basic strategies might be employed: a) modeling - the speaker might be exposed only to speakers who do not use the stigmatized form, but use the standard forms; b) explanation - the speaker is informed of the nature of the behavior required of him; c) practice - the speaker is called on in some way such as modeling or explanation to produce the desired forms; d) reinforcement - the speaker is negatively reinforced when he produces the stigmatized form or positively when he produces the desired forms.

Any language teaching is a combination of these: any language learning event takes place as the result of one of them. From the point

of view of the learner, language learning is basically a matter of exploring: trying out hypotheses about means of communication. The confirmation or disconfirmation of the new hypotheses takes place either when the learner encounters an utterance or understands one or in the reaction of the person with whom the learner is communicating. Once a child has worked out that there is some power of speech to control action or understand the needs of others, he is constantly exploring the nature of this power, finding out when it works and how.

The basis of language pedagogy is to recognize this exploration and the way in which it takes place, and to find ways to make it more efficient or to control its direction. Recognizing this, many scholars have stopped talking about experiments in language teaching and have called for deeper understanding of the way in which language learning takes place.

Some studies have raised questions about the importance of variations in methodology. Larger studies such as those by Schere and Wertheimer, Smith, and Levin have shown less variability accounted for by method than many language teachers would expect or supporters of one methodology or another would hope. A well-known study by John Upshur (1968) showed very little if any influence of formal instruction on foreign students' improvement in English, and a recent paper by Suter (1976) reports "negligible relationships" between pronunciation accuracy of 61 English learners and the amount of formal classroom instruction they were given in pronunciation. Among the factors he found of importance were native language, amount of concern the learner expressed about pronunciation, and amount of interaction with native speakers.

It is the questions raised by studies such as these that have led scholars to recognize the importance of study of second language

acquisition to the field of educational linguistics.

It will perhaps be noted that I have not attempted in the discussion so far to present any clear distinction between first and second language acquisition. While one of the classic studies in the field, that by Werner Leopold, was in fact that study of the language development of bilingual children and thus could clearly be considered a comparative study of first and second language acquisition, the two fields have developed in some ways quite independently. The study of first language acquisition has seemed to be much closer to theoretical linguistics and to psycholinguistics; the study of second language acquisition on the other hand, has been much more closely related to the practical concerns of language teachers and so has seemed much more like an applied field. In recent years, however, a number of scholars in the field of second language acquisition have attempted again to analyze the similarities and differences. Two papers in 1974 looked at the issue very carefully. Barry P. Taylor (1974) argued that in fact first and second language acquisition depend on a cognitively similar process. Taylor does not believe that the physiological evidence of a critical period is conclusive. He considers that the psychological learning strategies involved seem similar, believes that the native language is something the second language learner can fall back on rather than a source of interference, accepts that cognitive maturity possibly makes some difference, and concludes that the main reason for any differences are probably effective psychological variables. Susan M. Ervin-Tripp (1974) suggests that arguments for the existence of fundamental differences between first and second language acquisition have arisen largely because of the different kinds of study

that have been conducted. Second language acquisition research, she points out, tends to be applied while first language acquisition research is much more theoretical. The evidence used in the study of first language acquisition has often come from case studies with detailed analysis of an individual therefore possible. Those studying second language acquisition have tended to look at groups, their evidence therefore being statistical. Studies of first language acquisition have focussed on the strategies of the learner, while a great number of studies of second language acquisition focus on the variable input to the learning situation. Finally, first language acquisition studies tend to take place in natural environments while second language acquisition studies tend to be concerned with what happens in a classroom. She argues for one great value in the study of second language acquisition: it can ethically be manipulated:

> "We can readily control age of second language acquisition, but are dependent on social or physical accidents, with attendant confounding circumstances, to study hearing recovery cases or isolated children learning a mother tongue late."

In the paper, she reports on the result of a detailed study of some children learning a second language. She finds many basic similarities:

> "Second language learners, like children, remember best the items they can interpret"; "the basic preference of the child at first is for a principle of one meaning-one form, and he rejects two forms for it appears to be an identical meaning or reference situation'; and "the first features of sentences to be used in comprehension rules are those that

survive in short term memory best."

Overall then, she noted a great number of similarities between the kinds of sentences produced and understood by children learning their first language and children learning a second language. Contradicting a widely held assumption, she found that in the age range of 4-9 the older children appeared to learn much faster than the younger.

A number of studies attempt to deal with differences or similarities in the order of acquisition of specific features. Dulay and Burt (1974a) report on a number of studies of the errors made by children learning English as a second language and consider that they are similar to those made by children learning English natively. The greatest number (87%) they considered to be "developmental", that is like those that a native language learner makes, rather than a result of interference. They believe therefore that "the account of language acquisition offered by first language research has proved to be a most productive predicter of children's errors in second language acquisition" (p.134). Similar results are reported in other studies such a Milan (1974) and Gillis and Weber (1976). When, however, one looks more carefully at the actual order of acquisition, certain doubts seem to arise. A second paper by Dulay and Burt (1974b) finds a number of differences that leads them to conclude that "we can no longer hypothesize similarity between second language and first language acquisition" (p.255). Similarly, Bailey, Madden, and Krashen (1974) report results similar to Dulay and Burt's, showing some similarity in order of acquisition between adults and children learning English as a second language that is still different from the order in first language acquisition.

These seeming contradictions are perhaps to be explained by the somewhat limited scope of the research that has been done to date. Dealing with the wider question of the applicability of second language acquisition research, Tarone, Swain, and Fathman (1976) point out that a great deal of the work in second language acquisition has in fact looked at product rather than process. Working with a comparatively limited number of morphememes, there is found evidence of what is widely called the "inter-language" of second language learners at a given stage rather than evidence of the underlying process. The strategies and processes have not yet been fully studied; the individual variables (age, sex, etc.) have not been taken into account; the environmental variables have not been fully investigated, and the basic methodology of data collection remains underdeveloped and the validity of instruments unclear. The methodology of the studies and the statistics they use have been seriously questioned in a recent paper by Rosansky (1976).

The concentration of students of second language acquisition on product rather than process is perhaps best exemplified by the great attention they choose to pay to something that a number of them label "inter-language". The first clear exposition of the notion was in a paper by Corder (1967). In that paper, Corder proposed that a study of what he called the second language learner's "transitional competence" would reveal systematic errors arising not from interference from the native language so much as giving evidence of the nature of the learner's "approximative system". Within a few years, clearly under the impact of studies of first language acquisition as much as following Corder's lead, error analysis replaced contrastive analysis as a principal activity of those concerned with research in the area of language learning. A clear change of approach and goal was also evident: those who had worked in the field of contrastive

analysis clearly considered themselves applied linguists, their assumption being that the contrastive analysis would make it possible to prepare more efficient materials. Those working in error analysis, on the other hand, consider themselves much more students of psycholinguistics whose studies might lead to some understanding of the nature of second language acquisition and not necessarily to some immediate way to improve second language teaching.

It is perhaps because of this distinction in approach that the notion of interlanguage has become comparatively popular. Interlanguage, first used by Selinker (1972) is generally defined as a "system" that is "distinct from both the native language and the target language", Selinker, Swain, and Dumas (1975). A good deal of work in second language acquisition has been to attempt to establish the existence and nature of these inter-languages. There is an interesting change of perspective. Whereas to traditional language teachers (and probably to most students) a learner's control of a language at a given stage is assumed to be transitional, with both teacher and learner concerned to move it closer to the target, the student of interlanguage appears to be much more satisfied to accept it in its own right as an object for synchronic study. Serious problems of course arise from the fact that these learner's transitional systems do not turn out to be either stable or widespread. The degree of variation that is found causes concern. For example, Cancino, Rosansky, and Schumann (1975) found evidence of considerable variability in the order of acquisition. Looking at Arab students learning English, Scott and Tucker (1974) looked very hard to find some degree of regularity in their errors. Their conclusions suggest some confusion. They

"found errors that were sufficiently frequent and regular,

> as well as instances of correct usage apparently following standard English rules, for us to assume that we were dealing with a rule-generated language system... "

On the basis of their studies at two periods of time, they thought it reasonable to claim that they were dealing with "two approximate systems" although, recognizing all the differences that did occur, they recognized that they were dealing with "twenty-two idiosyncratic dialects".

In the study of speakers of four languages (Arabic, Spanish, Persian, and Japanese), Diane E. Larsen Freeman (1975) found a high level of agreement in the kinds of errors made, but still a great deal of evidence of apparent individual and language group variation. To deal with some of these contradictory results, Lonna J. Dickerson (1975) proposes that interlanguages, like real languages, should be seen as having variable rules:

> "Like native speakers, second language learners use a language system consisting of variable rules. Their achievement of the target language comes about through gradual change by using, overtime, greater proportions of more target like variance in an ordered set of phonetic environments". (p.407)

These arguments have been extended by Wayne B. Dickerson (1976) who demonstrates that the observations of five Japanese speakers learning English /l/ over a year provide data showing the kind of patterned variation and wave change postulated by Labov to explain language change. On the basis of this analysis, he argues that we are dealing with variable rules working in a native grammar (Japanese-English), which might be referred to as interlanguage provided interlanguage is defined to include variable

rules. He proposes variability analysis rather than error analysis, and suggests that tie failure of contrastive analysis has resulted from its refusal to accept variable rules.

As may be apparent from some of the references earlier, a good deal of the difficulty of this area arises out of first assuming an inter-language, a presumably complete grammar that has been internalized by the learner, but attempting to establish its existence by using fairly limited tests of errors made with certain morphological elements. As a result of this sketchy sampling of a learner's knowledge, the picture that emerges remains as confused as some of the statements made about second language acquisition.

Perhaps one of the greatest weaknesses of studies of second lang-uate acquisition is that they still are concerned with too simple a view of the process. As Tarone, Swain, and Fathman point out, they seldom go be-yond syntactic questions and are often limited to analysis of the order of acquisition of specific morphemes. In this, they are like many of the earlier studies of first language acquisition, with attempts to write simple grammars for learners. One can certainly sympathize with Adjemian (1976) who calls for "painstakingly designed studies repeated at various intervals, yielding both longitudinal and setting-specific data". (p.319) Those studying first language acquisition have found it necessary to move to much more complex approaches: to attempt semantic, cognitive, and pragmatic explanations of the process, and to argue that each type of explanation may be important at the various stages of development. Studying second language learners in action could, as Ervin-Tripp pointed out, be a very valuable way of learning more about the whole process of language acquisition; and recognizing the more complex models needed in first language studies will be a vital step in clarifying some of the confusions of present second language acquisition research.

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